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AMERICAN FRUIT GROWER

NOV 4 1943
RARY

NEW PLANTING METHOD

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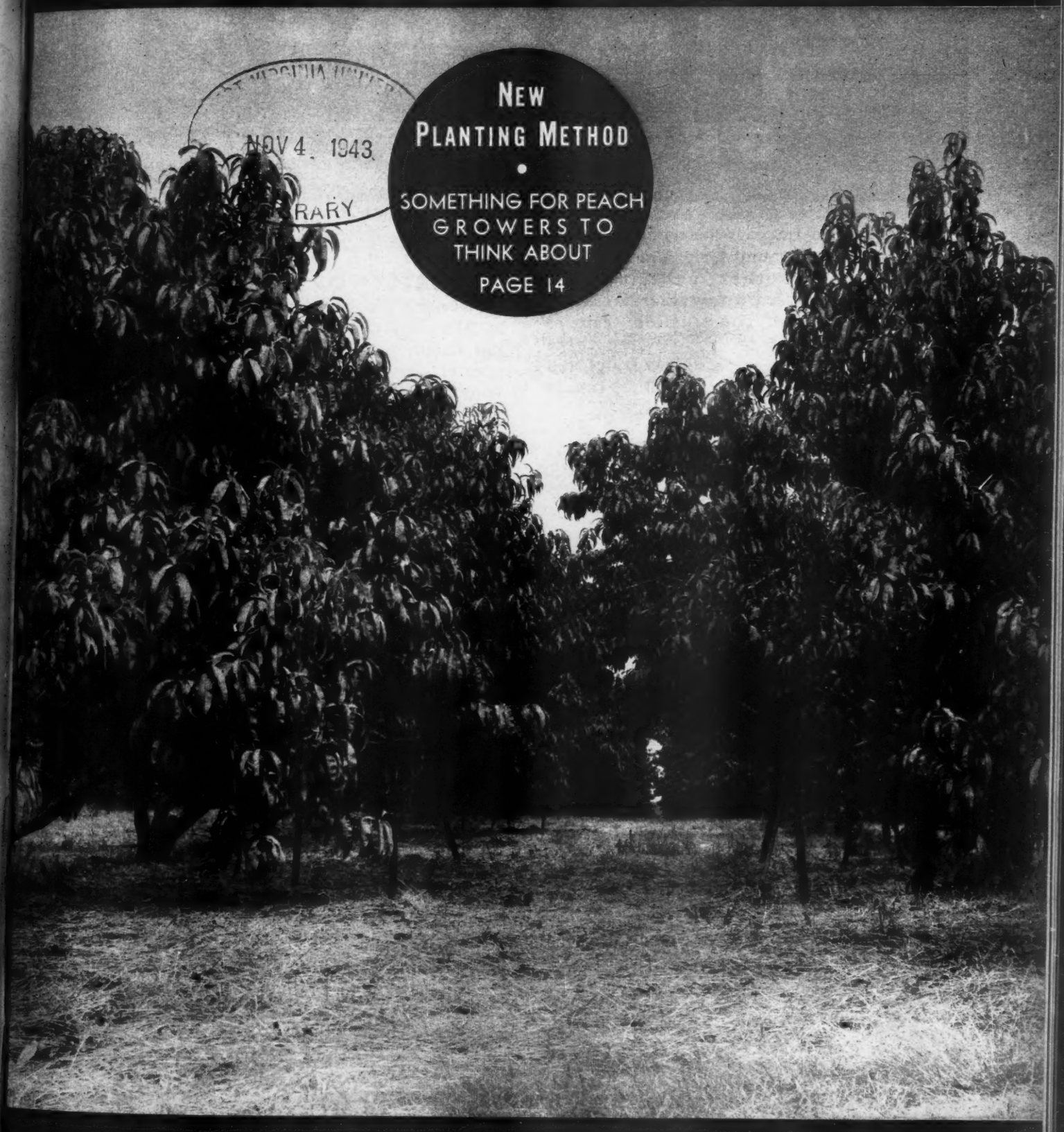
SOMETHING FOR PEACH GROWERS TO THINK ABOUT

PAGE 14



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The Firestone GROUND GRIP

MORE farm tractors are equipped with Firestone Ground Grip Tractor Tires than with any other make, because farmers everywhere know that Firestone *patented* construction features give them results that they cannot equal with any other tractor tires. Here are the facts:

*Mr. Extra Traction gets his name from the Extra Tread Rubber that gives Superior Pulling Power to FIRESTONE GROUND GRIP TRACTOR TIRES
Firestone
GROUND GRIP

BEST FOR TRACTION

Firestone Ground Grip tires give you up to 215 extra inches of triple-braced traction bar length per tractor. This means you get greater drawbar pull, use less fuel, and get your work done faster.

BEST FOR CLEANING

The continuous, extra-length traction bars take a *deep, clean* bite and the bars are molded on the tire at just the right angle so the patented tread automatically cleans as it pulls.

BEST FOR LONG LIFE

The Firestone Ground Grip Tractor Tire is built of rugged, tough, wear-resistant American-made rubber. To this, Firestone adds a unique rubber "vitamin", called Vitalin. This Vitamic Rubber guards against deterioration, resists the action of sun, water and weather, and protects the life of the tire.

When your Rationing Board gives you a certificate for new tractor tires, or when you order a new tractor on rubber, remember that it costs no more to buy the best—get Firestone Ground Grip Tractor Tires.

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Listen to the Voice of Firestone with Richard Crooks and the Firestone Symphony Orchestra, Monday evenings, over N. B. C.

MORE FARM TRACTORS ARE EQUIPPED WITH FIRESTONE GROUND GRIP TIRES THAN WITH ANY OTHER MAKE

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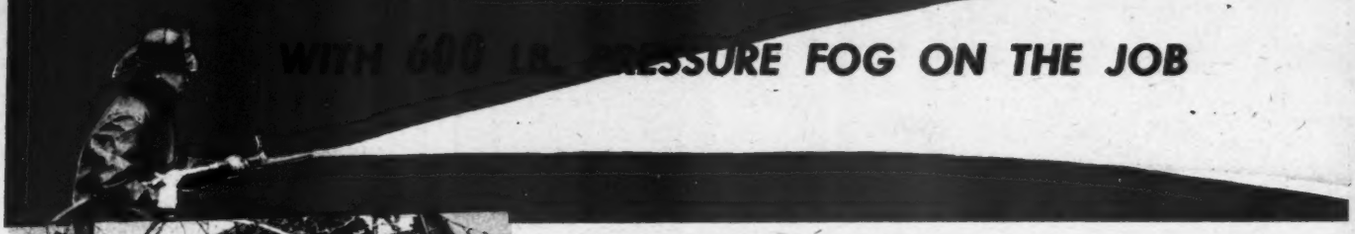
NO WATER SHORTAGE WHEN *FIRE* STRIKES



WITH 600 LB. PRESSURE FOG ON THE JOB

Above — *Fighting fires with FMC High Pressure Fog is a one-man job. Trigger-action Fog gun permits instant change from straight stream to any degree of fog as needed.* **Below** — *High pressure fog saved this barn from being burned to ground. There are hundreds of other examples like this.*

FMC FOG FIRE FIGHTER Carries own water supply . . . 1 gallon does work of 10 to 35 . . . Faster, Surer protection proved on hundreds of rural fires!

Lack of water is a disaster that happens too often in fighting rural fires. But with an FMC High Pressure Fog Fire Fighter on the job you carry your water right to the fire. The moment you arrive, you go to work with irresistible 600 lb. nozzle pressure fog.

FMC Fog Fire Fighters carry up to 400 gallons of water, together with attachments for taking additional water from any available source — and high pressure fog multiplies the fire fighting capacity of the water by 10 to 35 times! 600 lb. pressure at the nozzle (800 lb. at the pump) breaks up the water so fine that 1 gallon can absorb as much heat as 35 gallons of water at the usual low pressures. The quenching effect is tremendous, and the velocity at this pressure also helps put the fire out.

The incomparably greater speed and fire protection of FMC Fog Fire Fighters have been proved on hundreds of rural fires throughout the country. Plan now to have this modern protection in your community as soon as the war ends. For details and case histories, write to John Bean Mfg. Co., Lansing, Mich., or Bean-Cutler Division of Food Machinery Corporation, San Jose, Calif.

FMC FOG FIRE FIGHTER *designed especially for fighting rural and small town fires: Carries 400 gallons of water. Has attachments for taking water from wells, creeks and other available sources. Compare its high efficiency and low cost with standard low pressure units.*

Manufacturers of high pressure crash trucks for gasoline fires, and decontaminators for war service.

7 BIG ADVANTAGES!

1. Carries own water supply—up to 400 gal.—and full equipment.
2. Puts out fires faster with 10 to 35 times less water.
3. Many times more effective than low pressure.
4. Little or no water damage.
5. Complete, self-contained fire fighting unit.
6. Compact, light weight, economical. Easier to maneuver.
7. Low cost for all-type fire protection.

FMC *Original* FOG FIRE FIGHTER

FOOD MACHINERY CORPORATION

JOHN BEAN MFG. CO. DIVISION, 746 HAZEL ST., LANSING 4, MICH. • BEAN-CUTLER DIVISION, 446 JULIAN ST., SAN JOSE, CALIF.

TRUCKS MUST ROLL

FROM A STATEMENT BY JOSEPH B. EASTMAN, DIRECTOR, OFFICE OF DEFENSE TRANSPORTATION

"... the preservation, conservation and maintenance in effective condition of motor transportation is just as vital to the nation as is the preservation, conservation and maintenance in effective condition of . . . any other form of transportation."

★ ★ ★

General Motors Truck dealers were pioneers in truck conservation. Their Preventive Maintenance procedure, originated way back in 1928, has served as a pattern for both ODT and Army maintenance programs. Their entire service facilities . . . men, equipment and methods . . . have been geared to wartime needs of truck owners. Your trucks will roll longer and more efficiently if you give them regular GMC Service.

Special "Service Payment Plan" available through our own YMAC

★ BACK THE ATTACK

Pledged U.S. Truck Conservation Corps

GMC VICTORY MAINTENANCE KEEPS YOUR TRUCK ON THE JOB

★ BUY WAR BONDS

THE TRUCK OF VALUE

GMC TRUCKS

GASOLINE • DIESEL

CALENDAR OF COMING MEETINGS and EXHIBITS

Nov. 16—New Hampshire Horticultural Society annual meeting, Hotel Carpenter, Manchester.—Alfred L. French, Sec'y, Concord.

Nov. 16-17—Wisconsin Horticultural Society annual meeting, Avalon Hotel, Waukesha.—H. J. Rahmlow, Sec'y, Madison.

Nov. 18-19—Annual meeting of the Iowa State Horticultural Society and affiliated societies. Meeting to be held at Iowa State College, Ames.—R. S. Herrick, Sec'y, Des Moines.

Dec. 7-8—Connecticut Pomological Society annual meeting at Hartford.—H. A. Rollins, Fruit Specialist, Storrs.

Dec. 7-9—Michigan State Horticultural Society meeting, Civic Auditorium, Grand Rapids. Michigan Apple Show and commercial exhibits will be held in connection with this meeting.—H. D. Hootman, Sec'y, East Lansing.

Dec. 7-9—Virginia State Horticultural Society Annual meeting. Meeting place will be announced later.—W. S. Campfield, Sec'y, Staunton.

Dec. 13-15—American Pomological Society in joint session with State Horticultural Societies of Missouri, Illinois, Iowa, Indiana, Kansas, Nebraska, Arkansas, Kentucky, Tennessee and Wisconsin, De Soto Hotel, St. Louis, Missouri.—T. J. Talbert, Pres., Columbia, Mo.

Dec. 16-17—Indiana Horticultural Society annual meeting, Hotel Severin, Indianapolis.—Monroe McCown, Sec'y, Lafayette.

Jan. 5-6—Annual meeting of Maryland State Horticultural Society, Hagerstown. Subject to change.—A. F. Vierheller, Sec'y, College Park.

Jan. 12-14—Annual meeting of New York State Horticultural Society, Rochester. —Roy P. McPherson, Sec'y, LeRoy.

Jan. 17-18—Southern Illinois Horticultural Society meeting, Carbondale.—Curt E. Eckert, Sec'y, Belleville.

Jan. 26-28—Eastern meeting of New York State Horticultural Society, Kingston.—Roy P. McPherson, Sec'y, LeRoy.

Feb. 10-11—Annual meeting of Kansas State Horticultural Society will be held in conjunction with Farm and Home Week, Kansas State College, Manhattan. —Geo. W. Kinkead, Sec'y, Topeka.

No meeting of Northern Nut Growers' Association for the duration. Annual report will be assembled and published however. —G. L. Slate, Sec'y, Geneva, New York.

Montana Horticultural Society meeting will not be held this year on account of the war conditions.—Geo. L. Knight, Sec'y, Missoula.

E. G. K. MEISTER, *Publisher*

Be Fair, Judge Vinson, Be Fair

THE financial fate of apple growers hangs upon the slender thread of the personal appeal of President Benz of the National Apple Institute to Judge Fred M. Vinson for reconsideration of the apple deal and apple ceilings ordered by the government.

President Benz has put the facts and figures squarely up to Economic Stabilization Director Vinson, facts and figures which show that labor costs in growing and harvesting the 1943 crop of apples will not permit marketing under the government ceilings without penalizing the growers' pocketbooks.

Judge Vinson has already ordered the retail prices of apples to be rolled back to the level prevailing a year ago. President Benz in the light of the actual facts pleads with Vinson to reconsider his verdict.

Every grower should back the Institute's President in his petition for redress, back it by writing and wiring your support of the petition to the Office of Economics Stabilization in Washington.

In appealing for reconsideration of the apple deal, President Benz says: "Such action will result, we sincerely believe, in the maximum salvage of this year's crop of apples; will further result in giving the apple producers of the United States such evidence of good faith on the part of the Government that they will make the necessary effort, which will be required of them under mounting handicaps, to produce next year a maximum tonnage of war essential fruit, of which we are currently witnessing a rapidly shrinking supply. Grower compliance with the ceiling program will be encouraged, and run-away Black-Market operations discouraged.

"Failing to receive such consideration, we submit without fear of contradiction that a considerable proportion of this year's apple crop will be placed in jeopardy because of the discouragement of the producer, and quite likely a large tonnage will be wasted; that apple growers will find themselves compelled to curtail sharply normal cultural practices necessary in the production of apples next season, with the inevitable result that there will be a sharp reduction in tonnage of this item of food so indispensable in the dietary of our fighters and civilian war industry workers."

Judge Vinson's answer to the petition may be announced before this issue of AMERICAN FRUIT GROWER comes from the presses.

If it is a favorable answer, then the entire apple industry owes a vote of heartfelt thanks to President Benz and the National Apple Institute.

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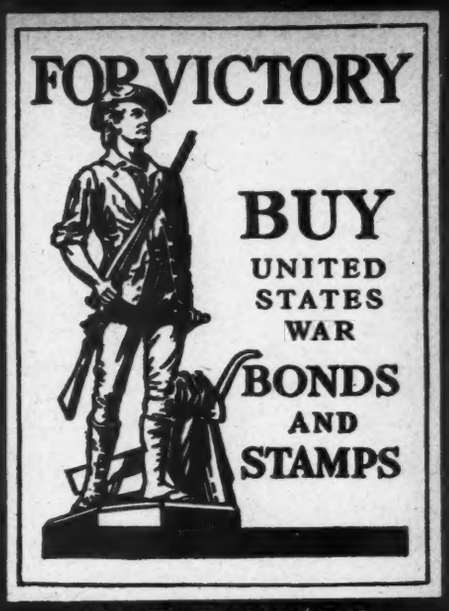


NATIONWIDE NEWS

THE War Food Administration has restricted the sale of Concord-type grapes for fresh consumption in five heavy commercial producing regions to assure the availability of supplies of processed grapes for the manufacture of increased quantities of jams, jellies, and fruit butters. The restricted areas are designated counties in New York, Pennsylvania, Ohio, Michigan, and Washington.

At the same time, the War Food Administration established a licensing system for processors of Concord-type grapes and users of processed Concord grapes in order to direct the use of such products into the most-needed channels.

These regulations are contained in Food Distribution Order 80, and are a part of the War Food Administration's plan to increase the civilian consumption of bread by providing ample supplies of bread spreads.

Producers in the designated areas are restricted from selling or delivering an aggregate of more than 100 pounds of Concord grapes for fresh consumption during each calendar year. Any amount above the 100-pound total must be sold to licensed processors for use in the manufacture of processed Concord grape products such as juice, frozen grapes, grape pulp, etc.

The order defines a "processor" as one who, in any calendar year, processes or has processed for his account more than 500 pounds of Concord-type grapes and further requires that all such processors obtain a license from the Director of Food Distribution before buying or accepting delivery of any quantity of Concord grapes restricted by the order.

★

O.P.A.'s R.S.O. No. 34 provides that on sales or deliveries of any commodity

(Continued on page 22)

Dynamite charge being exploded under 50-year-old tree. 2½ to 3 pounds of 60% dynamite under these old trees will usually blow them out and shatter the soil loose from the roots.

REMOVING OLD ORCHARDS TO MAKE WAY FOR NEW

By C. W. ELLENWOOD

APPLE WOOD is just the finest fuel one can want for an open fireplace. Large numbers of old apple trees and in some cases whole orchards ought to be made into firewood. This is true in spite of the currently good prices being received for apples.

Certain it is that the optimum production from the average apple orchard is between the fifteenth and thirtieth years. Trees older than this may continue to be profitable for several years, but the orchardist is wise who endeavors to keep the average age level of his orchard somewhere within this optimum range.

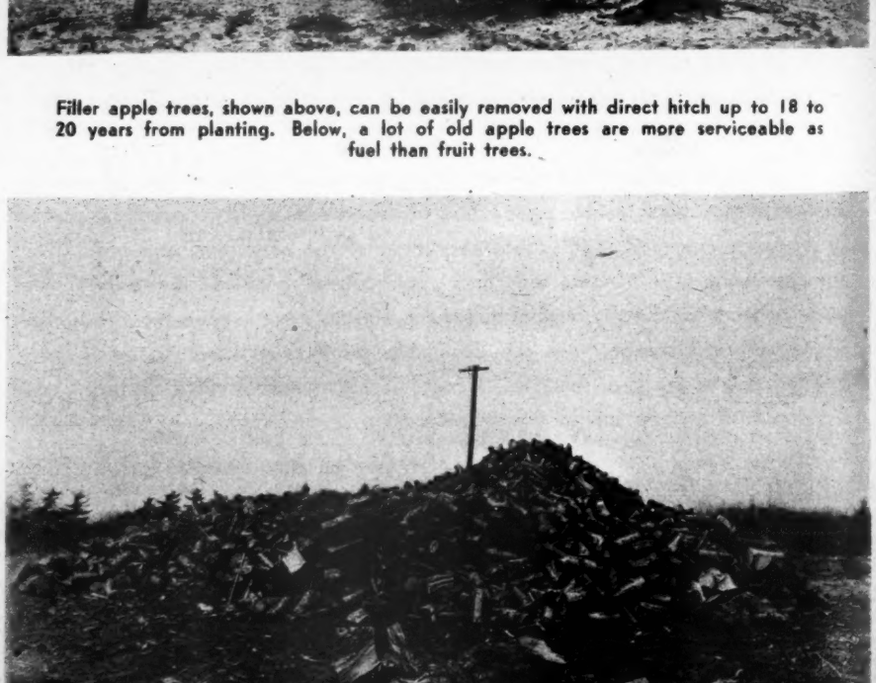
This suggests the annual planting or at least the periodical planting every few years of a block of trees. It also means that tree removal should be just as much a part of the orchard routine as planting. Tree removal may be only a minor matter if the trees are removed when they are young as is frequently true with filler trees, but removing old apple trees is something else again.

If the site where the old trees stand is to be again used for trees or for cultivated crops, roots as well as tops have to be removed. At the Ohio Experiment Station part of an orchard planted in 1893 was removed last winter. Some observations made during the progress of taking out this old orchard as well as similar experiences in removing younger trees may be worth discussing with the readers of AMERICAN FRUIT GROWER.

In the first place a good sturdy forty-or fifty-year-old apple tree is apt to be pretty firmly anchored, especially if the soil permits of deep rooting. A direct hitch by the ordi-

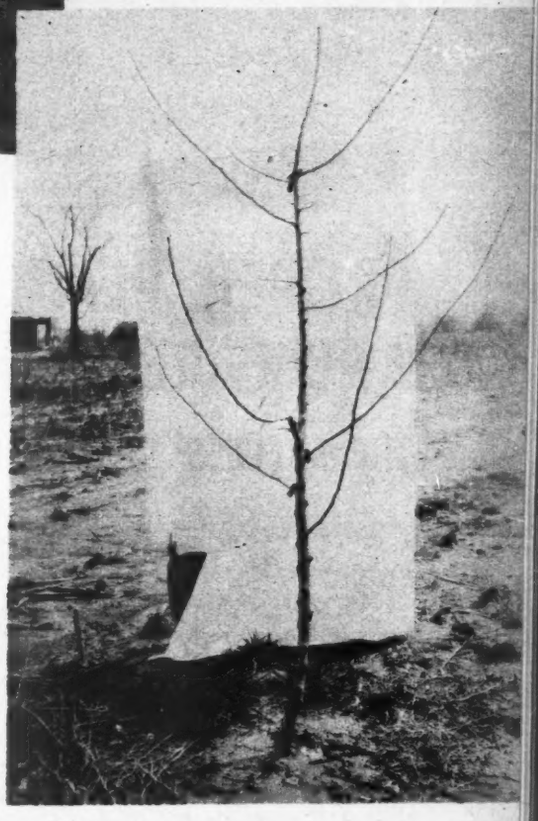
(Continued on page 18)

Filler apple trees, shown above, can be easily removed with direct hitch up to 18 to 20 years from planting. Below, a lot of old apple trees are more serviceable as fuel than fruit trees.



Stayman apple planted as a whip after first year's growth in the orchard. When the four branches marked for removal have been taken out a good modified leader type of tree will be started with four well spaced wide angle branches around the leader which is being modified into an upper lateral.

An Elberta peach tree started with a modified open head. Scaffold branches have been well spaced and each subsequently trained by cutting to outward laterals to train a desirable open center bowl shaped type of peach tree.



PRUNING
YOUNG FRUIT TREES

By FRANK H. BEACH
OHIO STATE UNIVERSITY

OBSERVATIONS in most commercial orchards reveal two glaring faults resulting from improper training of the young tree. First, scaffold branches have been allowed to grow too close together, with little attempt to get vertical and radial spacing around the trunk to insure strong uncrowded shoulders. Secondly, far too many branches that leave the trunk at a sharp angle have been allowed to grow into permanent scaffolds resulting in scaffolds that have a weak union with the trunk at the upper side. Such scaffolds frequently break off and split down as trees get older and more weight is imposed upon the scaffold union than it can carry without breakage. Beginning at planting time and during the next few years constant attention to the proper spacing of permanent scaffolds and selection of only those that leave the trunk at a wide angle will insure stronger more satisfactory bearing trees.

Since many experiments have repeatedly shown that heavy pruning of young trees reduces total growth and delays and limits bearing, it is important that no more pruning be given than is necessary to accomplish desirable training. The necessary cuts to eliminate undesirable branches arising from the leader and to select and space desirable scaffolds are very important and should be given each year as needed to get a desirable tree established. Once a desirable scaffold system has been secured, pruning of young trees can be very light, principally to remove unwanted water sprouts and superfluous branches arising from the trunk that otherwise would crowd the head and result in an unsatisfactory, dense tree.

Training cuts for young trees are best given from late winter through spring into early summer each year as needed, as fall and early winter pruning is sometimes associated with winter injury. As trees reach bearing age, the weight of fruit spreads and opens the trees and as fruiting branches age and become slow growing and underhanging they can be removed in the annual pruning so that the fruiting wood on bearing trees is kept relatively young and vigorous and with sufficient caliper to produce large size attractive fruits.

Apple trees are usually set as yearling whips or branched two year old trees. Large yearling whips train most easily and if more than four feet tall can be cut back at planting time to about fifty inches. Then in early summer or as soon as desirable wide angled branches can be observed leaving the trunk, a second cut can be made just above the highest desirable branch leaving the trunk at a wide angle. This branch will then continue as a desirable leader and three or four other wide angled branches below it, well spaced vertically and radially, can be selected to form the main scaffold branches. Low headed trees grow better and bear earlier than high headed trees so that if the lowest branch can be selected on the southwest side at a height of 18 to 20 inches, the lower trunk will be shaded on the southwest exposure, which is desirable, and

(Continued on page 12)

R. L. Gilmore, Warsaw, Ohio, apple grower, inspects a tree of his Golden Delicious to see if they are ready for the hormone harvest spray. Photograph courtesy Farm Credit Administration, Louisville, Ky.

PROPER PLANNING, PLANTING, AND CARE KEY TO CLEAN CROP

THE SUCCESS STORY OF A FARSIGHTED GROWER

By J. M. HEIZER

Farm Credit Administration of Louisville

"NEXT year's apple crop is made before this year's is harvested. A good crop doesn't just happen, you have to do something about it." Thus it was that R. L. Gilmore tried to show me how important it is for the orchardist, above all who earn their living from the fruits of the soil, to plan far ahead from the setting of each tender young tree through its entire productive life.

We were looking at the fine set of fruit buds on his 1000 tree orchard near Warsaw, Coshocton County, Ohio, wondering how kind the winter, rodents, fungi, insects and rainfall would be to them before next year's crop would be ready for the table. The Gilmore Fruit Farm's crop of 5000 bushels is a bright spot in the picture of Ohio's short wartime crop this year.

It bids fair to be a bright spot in another way—freedom from blemishes. When Ralph Davidson, Ohio State University extension entomologist, checked the orchard on September 7, he found only 32 apples out of 2400 inspected had insect or disease blemishes of any kind. Five varieties were scored.

This gave the orchard a score of 98.67, the highest any orchard had received this year up to that date, and Mr. Davidson was reported in the local paper as expressing confidence that it would be the highest scoring orchard in the state this year.

The Gilmore orchard is one of the best kept small orchards you'll find anywhere. Its owner first learned about fruit culture from his father. But it was not until he bought a 200 acre hill farm in Coshocton County from savings as a school teacher that he got into it on his own. He set his first apple trees on this farm 23 years ago, and perhaps came "of age as an apple grower" when at the Ohio State Fair he was acclaimed as having won more blue ribbons at that fair than any apple exhibitor had in any year during the fair's long history.

Gilmore raised purebred Merino sheep until about ten years ago, when farmers on the search for rams for the fall breeding season took so much of his time during the crucial harvest period that he got out of the sheep business entirely.

Beginning with this first orchard 23 years ago, he set his trees in rows closely following the contour of the land and with varieties interplanted to aid pollination. His youngest trees, set four years ago, were set on this same general plan.

Gilmore's major varieties are Jonathan, Grimes, Red Delicious, Golden Delicious, Stayman Winesap and Rome Beauty. He has a few other varieties and a few peaches from "filler" trees.

Gilmore believes his spraying, thinning and fertilization programs are primarily responsible for this

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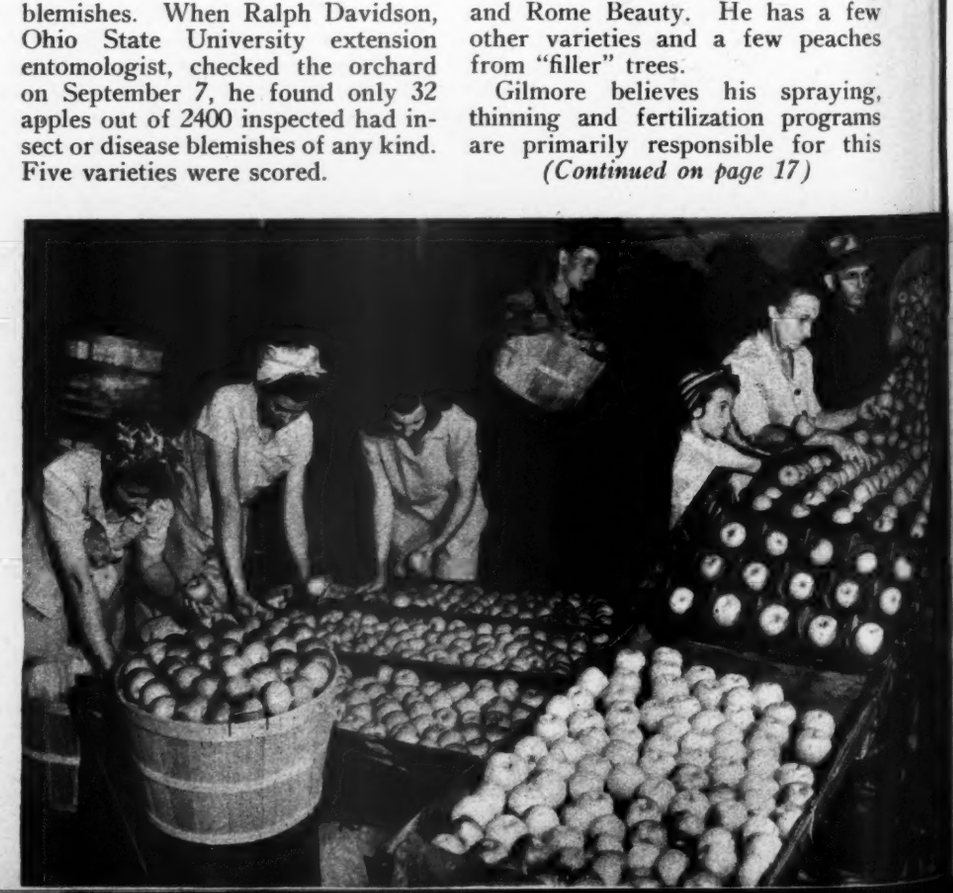

Women and girls outnumber the men five to two in this grading and packing scene on the R. L. Gilmore apple farm near Warsaw, Ohio. With Gilmore (dumping a basket of apples) are his wife and two daughters, a year-round hired hand, and on the left two girls from neighboring farms.

ARSENICAL SPRAY INJURY ON PEACHES

By N. F. CHILDERS AND A. E. MITCHELL

OHIO STATE UNIVERSITY

Figure 1. Above photograph shows gumming at the base of current season shoots as a result of cankers formed by acid lead arsenate injury. Note, also, cracking of the bark. Injury is more pronounced where spray deposit tends to accumulate such as the base of shoots and where leaf petioles join the shoot.

IN the September 1942 issue of AMERICAN FRUIT GROWER, a description was given of "Arsenical Injury on Peaches", which developed in July in the experimental orchard at Columbus, Ohio. A comparison was made between injury which appeared on trees sprayed with acid lead arsenate, (common form of lead arsenate), and injury which appeared on trees sprayed with basic lead arsenate. The basic lead arsenate was the superior spray insofar as foliage and wood injuries were concerned. The experiment was repeated this year in the same orchard on a different group of trees. Similar results were obtained.

The spray schedule for trees in Group I consisted of a shuck fall spray of four pounds basic lead arsenate, six pounds hydrated lime in one-hundred gallons of water. For trees in Group II the schedule consisted of one pound of zinc sulphate, two pounds of acid lead arsenate and two pounds of hydrated lime in one-hundred gallons of water, (commonly recommended in the East). Due to an excessive amount of rain in central Ohio, four sprays of eight pounds of

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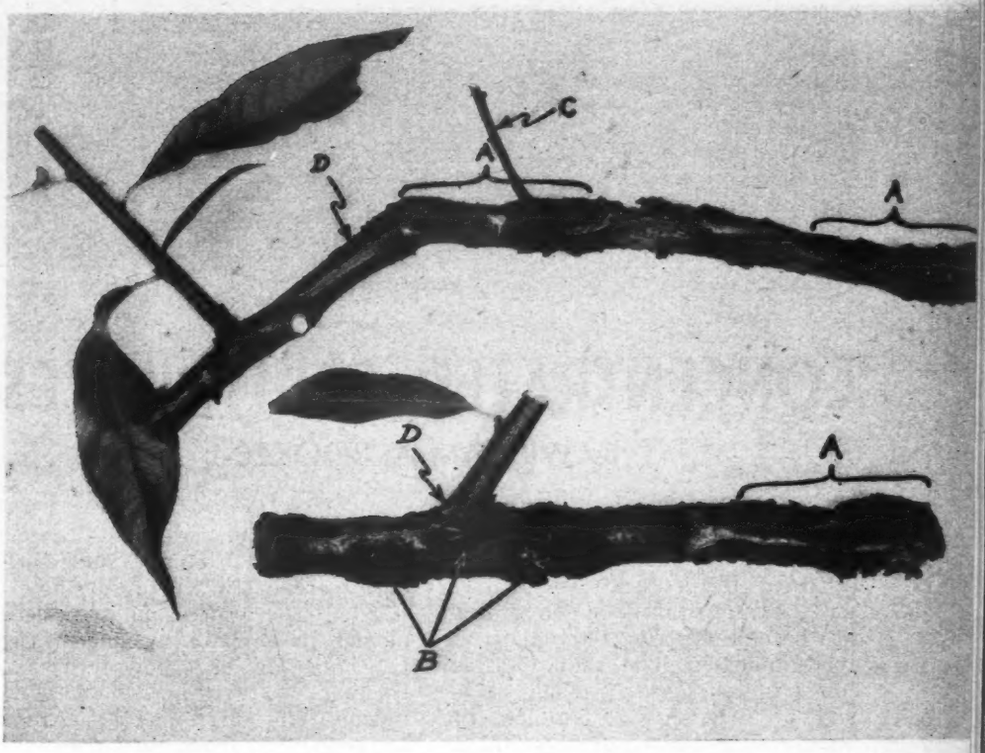


Figure 2, above, branch from Golden Jubilee tree which received acid lead arsenate at shuck fall spray last year, basic lead arsenate this year. Healing of the old cankers is shown at "A". Oozing and gumming is shown at "B". A dead twig of last year's growth is shown at "C". The current season's growth starts at "D".

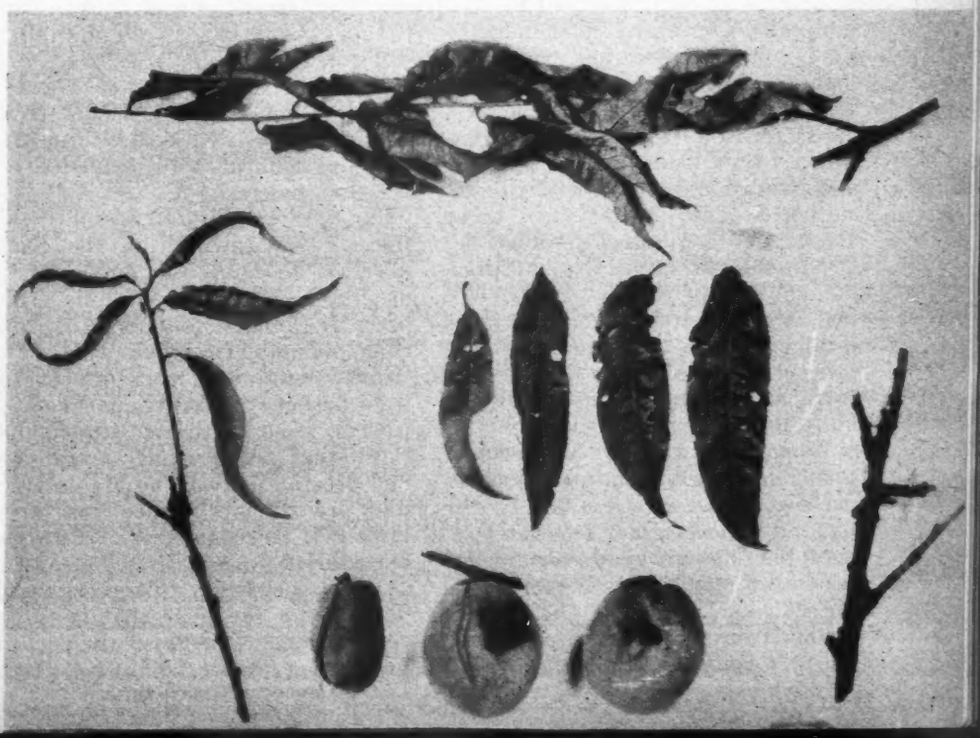


Figure 3, right, fruit, leaves and twigs from an acid lead arsenate sprayed peach tree, showing frog-eye appearances of leaves, exude from arsenate cankers on shoots and injured areas on fruit due to an excess of soluble arsenic.

Apples arriving at a processing plant.

CONCENTRATED FRUIT JUICES

By WILLIAM A. ROOKER

THE war effort has expedited the productions of such large quantities of dried fruits, meats, vegetables, milk, and eggs that food dehydration has become a major activity of our food industry. The actuating factor is, of course, the pressing necessity of reducing the volume, the weight, and the containers of the various foods to be shipped to our armed forces and to our allies. In turn, the obvious and material savings effected by dehydration invite speculation as to whether or not dehydration may be applied advantageously to certain foods that are to be kept at home for civilian consumption. Our entire food industry has become "dehydration" conscious.

If we broadly define dehydration as the process of removing excess moisture from foods; the concentration of a fruit juice is likewise a dehydration process, and the resulting product should show those advantages attributed to other dehydrated foods, i.e., savings in space, in weight, and in containers. We find this to be true. The advantages of dehydration do accompany the concentration of fruit juices and, fortunately, most fruit juices are quite adaptable to concentration.

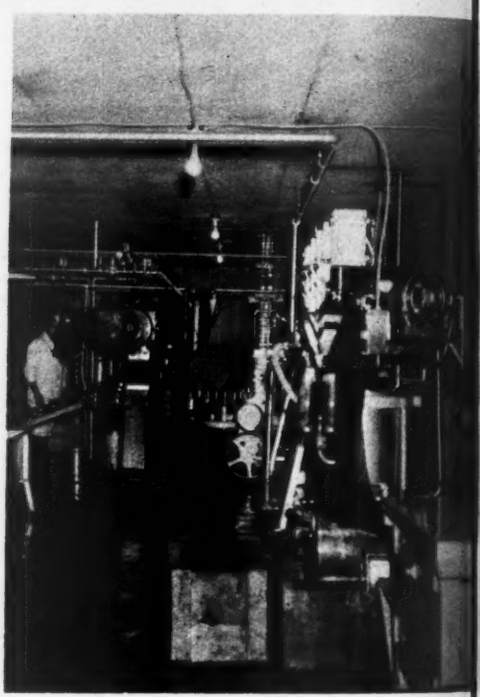
When preparing a concentrated fruit juice we also aim to: (1) retain unaltered most of the color and the flavor of the original fruit, (2) secure the highest yields of finished product compatible with economical and efficient operations, (3) produce a standardized and uniform product, and (4) carry the concentrating to a point where the fruit solids content of the finished product is sufficiently high to render it self-preserving.

The basic processing steps employed to prepare a concentrated fruit juice are as follows: (a) Extracting, (b) Pressing, (c) De-Pectinizing, (d) Clarifying, (e) Aroma trapping, (f) Concentrating.

The process step of extracting consists principally of heating the crushed or pulped fruit, with or without added water, at the temperature necessary and for the time required to free the juice from the fruit cells and to extract the coloring substances from the fruit tissues. As is true of all the other steps in the process, the exact details of the extracting step are determined for each particular fruit and may also be varied from time to time to confirm with maturity or varietal changes.

In the pressing step, the fruit juice is separated from the fruit fibers. The equipment employed is usually a standard hydraulic fruit press of the type commonly used in cider making. However, with some fruits, continuous wine presses or solid-basket type centrifuges may be used to separate the fruit juice and the tissues. A secondary extracting and pressing may be advisable with high priced fruits or with fruits containing a large amount of fiberous material.

With most fruits it is necessary to de-pectinize the juice that is to be concentrated. Otherwise, the pectins present may cause the finished product to set or form a jelly. De-pectinizing is most easily effected by treating the juice with commercial pectin-destroying enzymes.



Canning room in apple juice plant.

The de-pectinized juices are usually clarified to a high degree by filtration. Many suitable filters are available and the preferable procedure is to use a filter that requires diatomaceous earth, cellulose fibers, or asbestos fibers as a filtering medium. With some juices, however, a high degree of clarity may not be desirable; this is especially true of orange juice which is best strained rather than filtered.

During concentrating, the esters that impart the aroma or fragrance to the fruit are driven off along with the water. Fortunately, however, the esters are given off early in the

(Continued on page 14)

RODENT CONTROL IN ORCHARD AND STORAGE

PART II—THE PINE MOUSE

WORTH CLIPPING

ANOTHER mouse in the Eastern United States which does damage in orchards and other crop areas is the pine mouse. It is related to the meadow mouse, has a more limited range, is generally not as abundant, and has different habits. The range of the meadow mouse includes almost the whole of North America; whereas the pine mouse is largely restricted to the Eastern United States, from southern Massachusetts on the Atlantic Coast westward through the central and lower Hudson Valley, Pennsylvania, Ohio, and the Lower Peninsula of Michigan to eastern Nebraska, and thence southward to the Gulf of Mexico. In the Southern part of its range, it is usually more abundant than the meadow mouse; at least, from Southern Pennsylvania southward.

The Pine Mouse which because of its burrowing habits should be called the "Root Mouse."

Pine mice somewhat resemble meadow mice, but they have smaller bodies, about four inches long, very short tails, small ears and eyes, and short, smooth, glossy fur. The pelage on the back is a bright russet brown, the sides are a little lighter, and the feet and tail are grayish brown. The underpart of the pine mouse is dusky with brownish tinge. These animals should not be confused with the Shrews, which are highly beneficial. Shrews are smaller than mice and have a sharply pointed nose. They feed on insect larvae to a great extent and do no damage to vegetation or trees.

Pine mice, unlike meadow mice, are burrowing animals, living and feeding largely underground. Therefore, a knowledge of the habits and control of pine mice is important because their depredations may be unsuspected and overlooked until severe damage is done. Oftentimes, orchardists and others think that pine mouse injury is caused by moles and try to stop the damage by setting mole traps in the mole-like tunnels.

Pine mice may be found in orchards, fields, brushland, and forested areas. However, they seem to prefer an environment where open patches alternate with stands of shrubs or trees, and, unlike meadow mice, the higher, well-drained parts of the land; also, they like a light rather than a heavy loamy soil.

Pine mice make numerous mole-like runways or tunnels. According to soil types, these vary in depth from semi-surface runs, just under decaying mulch, to burrows two and a half feet underground. The deeper burrows usually result from following tree roots, which furnish a source of food. Adjacent to these runways, and usually about 6-10 inches below the soil surface, the mouse excavates a pocket in which it builds a nest of finely shredded grass, 6-8 inches in diameter.

The foci of a pine mouse burrow system are usually within a few feet of the trunk of a tree and the radiating laterals are closely associated with the root system. The animal could be more approximately referred to as a "root mouse" than a "pine mouse." Several cavities are usually excavated just off the main runways near the nest site and tightly packed with stored food items. These caches consist of small pieces of roots, rhizomes, bulbs, small green apples and grass shoots which are collected during summer and fall. The pine mouse eats this stored food during winter, when the soil is either frozen or natural food is scarce.

The intricate system of underground burrows has numerous openings (breather holes) to the surface. If meadow mouse surface trails are present near these openings, pine mice may use them for feeding and collecting food. Pine mice often construct their own surface trails under mulch and sod and live above as well as below the surface of the ground. They often use mole runways when these make contact with their own systems. Therefore, it is not uncommon in the same orchard to have pine mice, meadow mice and moles, using the same runways.

The habits of pine mice are similar to those of meadow mice in that they are active throughout the year. They tend to live in colonies but are not as prolific as the meadow mouse. In the northern part of their range, they do not breed during the winter months. Several litters are raised each year. Although naked and blind when born, the young can take care

(Continued on page 16)

AS A PART of the fruit grower's battle to conserve food during this total war, it is highly important for him to reduce losses to orchards and stored fruit crops by curtailing damage done by several species of rodents. The accompanying article on "The Pine Mouse" is the second of a series of five noteworthy articles on "Rodent Control in Orchards and Storage." This article has been prepared especially for AMERICAN FRUIT GROWER by Robert M. Borg, Assistant District Agent, Division of Predatory and Rodent Control, Fish and Wildlife Service, United States Department of the Interior. If after reading the accompanying article you desire further information, it is suggested that you write your County Agricultural Agent or the District Agent, Fish and Wildlife Service.—Editors.

PRUNING YOUNG TREES

(Continued from page 7)

above this level wide angled scaffolds that are at least eight inches or more apart can be selected to balance the tree. Many consider four scaffolds sufficient around the leader to develop a good tree.

Where two year old branched trees are planted the branches are usually too close together to permit desirable spacing for permanent scaffolds. The important thing to do at planting time is to establish the leader from which desirable scaffolds can be taken as they arise and perhaps only one of the original branches can be used, placed on the southwest side if possible. The branch selected for the leader can be trained much as described for handling the yearling whip.

Each year the tree should be gone over and any sharp angled scaffolds eliminated. If trees are managed to grow well and a single leader is established there will be no difficulty in finding sufficient wide angled scaffold branches to properly form the tree. The leader in an apple tree has fulfilled its purpose when it had provided a trunk of sufficient height to properly space the desirable scaffold branches. The leader can then be modified by training into an outward growing scaffold.

Inexperienced pruners often cut back the terminal growths of young trees. As new growth is always stimulated near the cut, this develops much vegetative wood and superfluous branches and tends to develop small dense trees that are late coming into bearing. Heading back cuts are only needed to correct legginess and secure branching near the cut. Desirable open fruit trees are trained by removing undesirable branches entirely, or by removing undesirable portions of desirable branches.

Peaches are always set as a yearling branched tree. The conventional method of pruning at planting time has been to cut back the tree to about 20 inches, remove all but three or four laterals below this cut and head back the remaining selected laterals to one or two buds. This results in a low, close-headed tree, and often there is considerable winter injury and borer trouble in the close crowded head. Many good peach trees have been grown with this system of training, however, and it is not possible to eliminate it entirely from the training practice with certain types of young peach trees.

In recent years experienced peach growers have been developing a modified open-headed tree by planting large growthy trees four feet or more in height and at planting time heading at 3½ to 4 feet, and stubbing all lateral branches above 15 inches from the ground to one or two buds. Start-

(Continued on page 21)

NATIONAL BIBLE WEEK

"The Bible is a book of faith, and a book of doctrine, and a book of morals, and a book of religion of especial revelation from God."

—Daniel Webster

THE week of October 11 to 17 has been designated as annual Bible Week in the United States, and arrangements have been made for its wide observance.

The Laymen's National Committee, in charge of the program, has made every provision for an instructive and inspiring observance.

The committee itself is representative of America in the broadest sense.

It includes laymen of the three great faiths in America—Protestant, Catholic and Jewish —and of all denominations and sects.

Its purpose, as stated in its own words, is "to restore to us the strength of soul of our forefathers, the pilgrims at Plymouth Rock, Washington at Valley Forge, Lincoln at Gettysburg."

As these declarations attest, Bible Week has great significance for the American people.

Daniel Webster's estimate of the Bible, quoted at the head of this column, was made in an address at ceremonies marking the completion of the Bunker Hill monument on June 17, 1843.

This was the second of two great addresses made by Mr. Webster at Bunker Hill, the first being delivered in 1825 on the occasion of the laying of the cornerstone of the monument.

Mr. Webster, in fact, contributed richly to the patriotic and spiritual inspiration of the American people on numerous occasions, one in particular being an occasion at Plymouth Rock when he said:

"Whatever makes men good Christians, makes them good citizens."

The Bible is a wonderful book.

It is a beautiful book.

It is an ETERNAL book.

People neglect and ignore it, and still love and respect it.

They put it out of their lives for years upon years, and are still incapable of forgetting it.

Mankind has a faith in it as great as human faith can be.

PEACH INJURY

(Continued from page 9)

flotation type sulphur per hundred gallons were made on both groups of trees at desirable intervals before the peaches were harvested. Tests were made on the Rochester, Halehaven, South Haven, Golden Jubilee and Elberta.

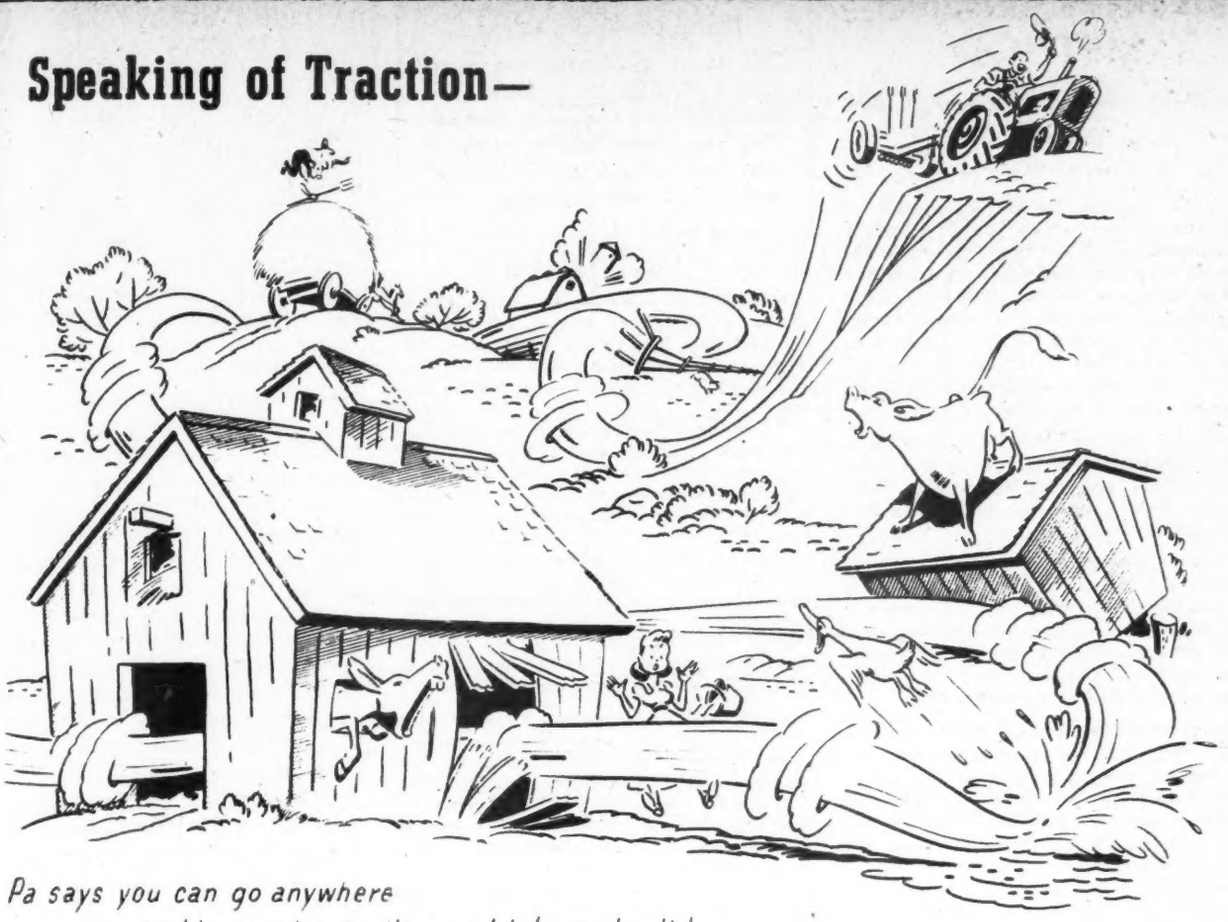
Weather conditions this summer were similar to those of last year. There was considerable rain and high humidity, with temperatures of around 90°F on sunny days. Such conditions are inducive to arsenical injury to peach trees as pointed out by Kadow and Anderson of Illinois. Injury appeared about the middle of July and was readily apparent the first and second week in August. The injury consisted of yellowing and marginal burning of tip leaves with loss of leaves on mid and basal portions of shoots; cracking, shriveling and gumming of the fruit; cankering and gumming of last year's and the current season's wood; and shot-holing and yellowish-reddening of the leaves. The cankers which formed at the base of the current season's growth in many cases eventually rung the shoot and caused the leaves to turn yellow and die intact. (Figure 1). Over half of the shoots on the Rochester trees showed this effect, while on the Elberta trees only a few of the shoots showed the effect. The order of susceptibility from most to least susceptible to acid lead arsenate injury was: Rochester, South Haven, Halehaven, Golden Jubilee and Elberta. Size of the fruit on trees sprayed with basic lead arsenate was from one-quarter to one-half inch larger in diameter at harvest time than fruits from trees receiving the acid lead arsenate spray. Color and flavor of the fruit from the basic lead arsenate sprayed trees was superior. On limbs of the Rochester trees which showed considerable burning and injury, the fruits shriveled and fell before they were mature.

Many peach orchards in Ohio, including the Experiment Station Orchard at Wooster, have experienced this summer, injuries as described above. The injuries in most orchards developed around the first of August. The spray schedule used in most cases consisted of a shuck fall spray of one pound of zinc sulphate, two pounds of hydrated lime, and two pounds of lead arsenate in one hundred gallons of water. This was followed by from two to five sprays of flotation or wettable sulphur before harvest.

The New Jersey Agricultural Experiment Station has been testing the basic lead arsenate on peaches as compared with acid lead arsenate. A report in their State Horticulture Society Proceedings in March 1943

(Continued on page 17)

Speaking of Traction—



Pa says you can go anywhere on his new tractor tires and he's proving it!

—But Here's a Better Way to Find Out for Yourself

AFTER all, what you want most in a tractor tire is TRACTION. To get the greatest traction a tire should

1. bite into the soil
2. grip the soil without slipping
3. be self-cleaning. (If the tread clogs, it just can't bite and grip.)

Why not find out for yourself just what tire does this job best? Ask your neighbor what he thinks of the various types of tread designs. Take a look at all types *in operation* on your neighbors' farms. Compare them.

See for yourself why the tough, long-wearing B. F. Goodrich Silvertown gives you the kind of traction you want.

Watch the *Bite*: the extra-high cleats and the open-center design of the Silvertown give a deeper bite.

Watch the *Grip*: paired cleats of the Silvertown give double grip. Extra-heavy shoulders provide maximum pull.

Watch for *Self-Cleaning*: the tread design is open—no mud-catching pockets. And because it's open, it's flexible—the cleats spring the dirt free with a slingshot action.

You can see these things for yourself right down the road on your neighbors' farms. Make this check before you buy. See why we say B. F. Goodrich Silvertowns give you the "best traction on earth".

Rubber is still mighty scarce. You help your country by making every tire you own last just as long as possible.

NEW PLANTING METHOD

Something for Peach Growers to Think About

(See Front Cover)

A WALK through the peach orchard of Harry Anderson, New Park, York County, Pennsylvania, would give peach growers something to think about for grower Anderson has worked out a new method of planting peach trees which is entirely his own. Grower Anderson years ago planted his peach orchard so that the trees "are thick just like woods." Turn to the front cover photograph which shows tree rows in his orchard.

Anderson also maintains his orchard on a mulch system. This is his own idea but let C. O. Dunbar, Instructor in Pomology, Pennsylvania State College, describe Anderson's methods.

"Grower Anderson treats his 9 acres of peaches with straw from 9 acres of wheat and spreads this straw in July. He supplements it with some manure, nitrogen and also complete fertilizers. This 9 acres of peaches is the most profitable peach orchard in Pennsylvania," states Professor Dunbar.

"Anderson's records show that his 9 acres have averaged 5,000 bushels of peaches during the last four years, which is about three times the yield of most of our growers. The quality is very high and the size of his fruit is very large. He gets the top market and picks his fruits much more nearly tree ripe than the rest of our growers. His orchard is located about 60 miles from Baltimore. He has no cover crop but maintains his organic matter by putting in the straw grown outside. He does not disc it the same year he puts it in. His trees are thick, just like woods, and it would be difficult to grow a cover crop in the dense shade of this orchard."

In discussing Anderson's orchard at a meeting of the Illinois State Horticultural Society, W. A. Ruth, Chief in Pomological Physiology, Department of Horticulture, University of Illinois, pointed out that these facts about the Anderson orchard and methods are to be especially noted. Other facts to be inferred he stated seem to be: (1) This is the most profitable peach orchard in Pennsylvania. After all, profit is what counts. (2) The trees are "thick, just like woods." Presumably this means that the trees are closely planted, perhaps so closely as to shade the ground almost completely (see cover illustration); this assumption seems to be confirmed by the fact that the organic matter used is grown outside the orchard. If the ground is permanently shaded, a new set of environmental conditions is established, of a sort which can not fail to have pronounced effects upon soil temperature, soil water, soil fertility, root growth, and leaf, fruit and wood growth. (3) The organic matter, in the form of straw, is supplemented with manure or chemical fertilizers. (4) The straw is applied in July, and is not disced in. The straw, therefore, supplements the shade provided by the trees. Presumably, discing early in the season is light; if so, surface roots are conserved, rainfall is intercepted and saved, especially if the surface is left rough, and soil erosion is prevented. The supply of organic matter is maintained. (5) The yield is very high. An average of 5,000 bushels means 555 bushels per acre. (6) The quality of the fruit is high. This means that the trees, or at least the fruit, can be effectively sprayed. (7) The fruit is large, and can be picked relatively ripe; this and the size of the crop show that, regardless of everything involved or, to state it another way, because of everything involved, this unconventional method of peach growing is a vast success.

National Apple Week:

This year, the dates are from Oct. 23 to Oct. 31, inclusive. The celebration of the week that extolls the virtues of the apple is now international, and its observance is expanding rapidly.

STATE NEWS

CONNECTICUT—Dry weather during August and early September caused a twenty-five per cent reduction on the Connecticut McIntosh apple crop. In orchards suffering from drouth the McIntosh fruit drop started September 10.

The McIntosh harvest was at the peak from September 13 to 20. Fruit size was only fair and color fair to good. A number of growers found it necessary to use a late summer spray of oil or DN 111 for European Red Mite Control.

There has been an increase in the number of growers using a harvest spray this season both on early apples and on McIntosh. The Connecticut apple crop will likely be about 850,000 bushels with Delicious, Baldwin and Northern Spy showing a relatively light crop.—H. A. ROLLINS, Extension Fruit Specialist, Storrs.

INDIANA—The Indiana Berry Growers' Association will hold its annual meeting on Saturday, October 16. The forenoon program will consist of a field trip into plantings in the Floyd Knobs area, in Floyd County, while the afternoon discussion program will be held at Borden, in Clark County. Among the subjects for discussion will be source of plants for new patches in 1944, the program to eliminate red stele which is present in a few plantings in some areas of the commercial section of Indiana, the control of insects and other diseases, and mulching of the plantings.

Rev. A. E. Fischer of St. Anthony, President of the Indiana Berry Growers' Association, in announcing the meeting characterizes this one as "The most important meeting of our association since it comes at a time when our nation is at war and the need for food is great. All berry growers are invited and are urged to attend this important meeting."

Harvesting of the 1943 apple crop is progressing in Indiana with local labor shortages apparent but generally the higher wages are attracting a sufficient number of pickers. Cooler weather is bringing excellent color and rains have stopped the heavy drop. Harvest sprays have been rather widely used by the Indiana orchardists.—MONROE McCOWN, Sec'y, Lafayette.

FOOD MACHINERY PURCHASES NIAGARA SPRAYER CO.

Controlling interest in the capital stock of Niagara Sprayer and Chemical Co., Inc., Middleport, New York, owned by the late Alfred H. Schoellkopf, has been purchased by Food Machinery Corporation, San Jose, Calif.

Paul L. Davies, President of Food Machinery Corporation, states that the Niagara Sprayer and Chemical Co., Inc., will be operated as a separate unit of Food Machinery Corporation and will continue to serve its regular trade and territories. No change will be made in the officers or management of the Company's headquarters plant at Middleport, New York, or its branches in Jacksonville, Florida, and Burlington, Ontario, Canada. J. B. Cary, President and General Manager, Ernest Hart, Vice President and Sales Manager, and B. Earle Vosteen, Secretary and Treasurer, will continue as officers and directors of the company.

For the past several years Food Machinery Corporation has been developing improved processes for the chemical treatment of fruits and vegetables in preparation for market and storage. The integration of Food Machinery Corporation and Niagara Sprayer and Chemical Co., Inc., is, therefore, logical for both companies.

FRUIT JUICES

(Continued from page 10)

process and may, therefore, be trapped and recovered. The esters can be concentrated by fractional distillation to such a degree that those present in 1,000 gallons of the fresh juice are retained in only 1 gallon of the distillate. After the juice is concentrated the esters are added back to the finished product and the result is a highly concentrated fruit juice from which practically nothing has been removed but excess water.

The concentrating step is best effected in vacuum evaporators, for concentrating at atmospheric pressure will impart a cooked flavor and an off color to the finished product. The degree of concentration should be high enough to render the product self-preserving so that it will not require hermetically sealed containers or cold storage. And the end point should be standardized and carefully controlled so that the consumer will be assured of a uniform product at all times.

When it has been prepared by a satisfactory process, a concentrated fruit juice will carry all of the major advantages ascribed to a dehydrated fruit and, what is equally important, the concentrated juice has certain advantages not inherent in the dehydrated fruit. Both the concentrated juice and the dehydrated fruit have the advantages of being self-preserving and of being greatly reduced in volume and in weight. But the dehydrated fruit adds somewhat to the inconveniences of the user in that it requires both time and treatment for reconstitution; while the concentrated juice is ready for immediate use and, in many applications, actually requires less time and less treatment than would be expended if the fresh or unconcentrated juice was being used. Insofar as quality is concerned: the properly prepared concentrate is the superior product for it contains the aromatic esters that are lost in dehydrating the fruit and which are so essential if a natural, full-bodied, fruity flavor is to be retained. It is logical to conclude, therefore, that the concentrated juices may have better chances than the evaporated fruits to survive after the War and the post war world relief period have ended.

Let us not conclude, however, that a new and ready made industry is begging for immediate large scale development or that fruit juice concentrates will bring about a material increase in fruit consumptions. Considerable research remains to be done in the processes of manufacture; the keeping qualities of certain concentrated fruit juices must be investigated; and the most satisfactory and convenient methods of using the concentrates in place of fresh juice must be perfected. We have made sufficient progress in our studies, however, to know that properly prepared concentrated fruit juices have worthwhile advantages for such fruit juice users as the beverage manufacturer, the baker, the confectioner, the preserver, and the ice cream maker.

APS

A PAGE CONDUCTED IN THE INTERESTS OF THE AMERICAN POMOLOGICAL SOCIETY

Cooperation and Confidence

By T. J. TALBERT, President

WE are already aware of the fact that this war has already affected our everyday lives much more strikingly than all of the four years of the last great struggle. Furthermore, everyone realizes that we are faced with more and more readjustments in our personal, community, and national affairs. Our so-called rights and privileges must be adjourned or be given a back seat for the duration. We may as well resign ourselves to greater tasks, get used to, and be happy about shortages in this, ceilings on that, and still another needed commodity withdrawn from the markets. Every loyal American should be inspired, heartened, and enthused with the words of General Jan Christian Smuts of Great Britain. The statement follows:

"Much has gone which is lost forever, but one thing—one thing is not lost; one thing, the most precious of all, remains, and has rather increased. For what will it profit a nation if it wins the world and loses its soul? The soul remains."

The working program of American Pomological Society is self-evident and based upon common knowledge. It assumes that everyone engaged in the fruit industry best serves himself who gives greatest attention to the interests of all. Such doctrine, from the point of view of the selfish, is rank heresy. It is so plain and evident, however, that this is the right course. Only the blind may fail to recognize the value of the principle.

Moreover, this theory is generally accepted by all outstanding leaders of business, professional and agricultural groups. It is also confirmed by prominent civic organizations such as Kiwanis, Rotary, Lions, and others. Eminent economists, scholars, and social and industrial workers endorse it as the only constructive and successful procedure.

This society has always refused any solution of questions or problems of fruit growers unless their proper handling assured benefits to all producers alike. The consistent policy of helpful, practical and workable

(Continued on page 22)

Safeway Sets Up New Produce Buying Organization

This announcement is published so that the trade may know what the Easwest Produce Company is, and why it has been established. The Easwest Produce Company is a Division of Safeway Stores, Incorporated. It is a new company trade name under which will be handled all matters formerly concerning the Central Produce Department of Safeway Stores, Incorporated, of Oakland, California. It has been established as a means of securing more efficient operation for Safeway, by clearly separating the company's buying and distributing functions. Its name distinguishes it from other commodity procurement operations of Safeway.

Placement of Safeway's produce buying under this new company trade name will not involve any changes in operating methods or personnel.

The Easwest Produce Company **WILL BUY PRODUCE EXCLUSIVELY FOR SAFEWAY STORES.** ***It will not collect or accept commissions, allowances, or brokerage, and will operate under the same Safeway general policies which have controlled the predecessor Central Produce Department.***

Mr. E. L. Price, Jr., has been appointed company manager of the Easwest Produce Company. All Branch Produce Buying Offices formerly operated by the Central Produce Department will now operate under the new company trade name and under the direction of the headquarters office shown below.

Headquarters of the new organization are as follows:

Easwest Produce Company
Division of Safeway Stores, Inc.
364 - 14th Street, Oakland-12, California
(P.O. Box 180, Oakland-4)

Regional supervisory offices, and the men in charge of them, are as follows:

Northwest Territory: 71 Spring Street, Seattle-4, Washington.
D. C. Frederick, Supervisor.

Central Territory: 1801 Alpine Street, Dallas-1, Texas.
H. C. Lytle, Supervisor.

Southwestern Territory: Wholesale Terminal Building,
7th & Central Streets, Los Angeles-21, California.
C. M. Anderson, Supervisor.

Eastern Territory: 1901 Fenwick St., N.E., Washington-13, D. C.
R. H. Lamb, Supervisor.

Typical Pine Mouse injury to tree roots.

RODENT CONTROL

PART II—THE PINE MOUSE

(Continued from page 11)

of themselves in about three weeks. Little is known of their cyclic changes in abundance, but there are years when pine mice reach a low ebb and also other years when they return to a peak of abundance. During these high mouse population years, heavy damage occurs in orchards, but the damage seems to be continuous and accumulative.

The greatest damage to fruit trees by pine mice is sustained during winter and early spring. The severity and time of injury may vary with type of soil and location, amount of stored and available natural food, number of mice present, and local climatic conditions.

Injury by pine mice is, almost without exception, below the surface of the ground. Tree roots of all sizes are attacked as well as those portions of the tree trunks at the ground surface, known as the root collars. In some years only a few roots may be completely or partly barked, with no appreciable or noticeable change in the vigor of the tree. In other years, nearly every root will be barked, with the result that during the following growing season the tree appears "sick," and new wood growth and foliage are greatly reduced. There may be an abundance of flowers on the tree but the leaves will be pale and small; and the fruit, though plentiful, will be small and will usually drop before it has reached maturity. When these signs appear, there is practically nothing left for the orchardist to do except to replace the tree, because it will usually die the next year.

Wherever pine mice are present, one can be certain that the trees are not producing to their fullest capacity, even though they may appear healthy. A little nibbling or barking by pine mice each year will cause a lowering of the tree's capacity to produce.

There is also the possibility that pine mice, through their tunnelling, may aerate the soil to such an extent that the smaller roots will be injured.

The presence of pine mice in the orchard may be determined by their mole-like runways near the surface of the ground, "breather" holes which lead to deeper burrows, fan-shaped mounds of dirt under trees, or even surface trails under mulch, matted grass, or material purposely placed in the orchard, such as asphalt-paper squares, sacks, or wooden slabs.

Indirectly, their presence may be determined by the general condition of the trees. If certain trees do not appear healthy, it is possible that pine mice are present and have injured the trees. Another way is to check the firmness of the ground under trees by trampling. If the ground feels "spongy" or soft, it is possible but not positive that pine mice may be present as this soft condition of the soil may be the result of their intricate system of underground burrows. This can be checked by spading. Trapping will be necessary to determine whether pine mice, meadow mice or shrews are present.

Underground tunnels may be detected by probing with a stick about ½ to 1 inch in diameter, but the most reliable method of determining, not only the presence but the kind of mouse, is to set a few wooden-base mouse snap traps at or near any active mouse signs in the orchard. These may be baited with a little peanut butter and sprinkled with rolled oats.

Once pine mice have been detected in the orchard, there are two preventive measures which may be undertaken. These are as follows: (1) Practicing clean cultivation, or frequent discing or harrowing, which have some value, and (2) Killing the mice by trapping, gassing, or poisoning, which is the best means.

Clean cultivation, discing and harrowing are methods which make an area less inviting and attractive for pine mice than the same area in weedy sod, because of the destruction of weedy annuals which form part of the pine mouse diet. These practices discourage but do not control. Clean cultivation removes some of the food but must be done regularly to be of even slight value. If it is not carried out up to the tree base, it may be more harmful than beneficial, as the mice will be driven up to the trees. Frequent discing or harrowing does not destroy the plant growth but merely keeps it down.

If pine mice are present in an orchard, to begin clean cultivation merely forces them into feeding on tree roots more intensively, as many an orchardist can testify. The mice can exist entirely on root cambium, windfall fruit and an occasional sprig of grass or other plant. Pine mice must be removed first by trapping or poisoning, if clean cultivation is to be introduced. Even then poison control will have to supplement the clean cultivation to maintain a mouse-free area. Also, unless cultivation is practiced over the entire orchard, mice may move into the undisturbed areas, where they may cause greater injury to the trees.

In addition to the above method, there are several aggressive control measures which the orchardist can use to reduce the number of mice. In small orchards pine mice may be controlled by trapping but this method requires a great deal of time and patience. Small wooden-base mouse snap traps should be used, baited with apple or peanut butter. The traps

(Continued on page 20)

SUCCESS STORY OF FARSIGHTED GROWER

(Continued from page 8)

year's relatively good and almost perfectly clean crop. Frequent showers stepped up the spray schedule so that 13 were required to protect from scab and insects. First came the dormant oil spray. Second was a delayed dormant of liquid lime sulphur. Two pre-pink, one pink and one blossom spray of the same solution were made. The calyx spray was lead arsenate, lime and wettable sulphur. Six more cover sprays of this solution were required to keep foliage and fruit protected from insects until late July when danger from damage was past. A hormone harvest spray had not been applied at the time of our visit, but was soon to be applied to the Red and Golden Delicious and Rome Beauty. This spray Gilmore finds is most effective on long-stemmed varieties like these and Jonathan when applied a week to ten days before picking.

Thinning is one of the most important operations in assuring a crop of good color and size, yet Gilmore doubts if any orchardist ever gets the job done to his entire satisfaction. His best results are obtained when the job can be done from six to eight weeks after bloom—also a busy time for the spray crew.

Fertilizer should be applied every year to assure a good set of buds on next year's fruit spurs and to develop the current crop. For twenty-year trees he uses five or six pounds of cyanamid to the tree depending on the variety. Red Delicious will stand the most and Jonathan the least, he finds. For younger trees he follows the rule of one quarter pound for each year of age. Application is made in early spring.

Mice cause him more concern than any other rodent. Damaged trees are bridge grafted. To prevent damage he keeps down growth of ground cover by mowing at least twice during the summer, keeps cover raked back from trees and mulches well out from the trunk. Feeding out a carload of beef cattle each winter not only works in well from a labor standpoint but supplies manure valuable in keeping up fertility and retaining moisture in the soil.

Labor is not a serious problem at the Gilmore orchard. One year-round hand is kept, and harvesting is done by men, women and girls from neighboring farms. These harvest hands are paid by the hour, and pick, grade, or pack—whichever job is most pressing at the moment. This year's crop is finding a ready market at Cleveland, Ohio, ordinarily a market that prefers the red varieties.

One big labor saver is the 400 gallon Bean sprayer Gilmore purchased last year. Water pumped from the valley up to a big supply tank on the hilltop in the orchard makes refilling the spray tank a simple task.

Although Gilmore was recently appointed county auditor to fill a vacancy, is vice president of his national farm loan association, a member of the local production credit association and active in many other community activities, he has one burning ambition. He'd like to throw a rotten apple in Hitler's face to lend support to his son, John, who as a lieutenant in the Army Air Corps, has won distinction and several medals for leading the air attack on Salerno.

PEACH INJURY

(Continued from page 12)

states that basic lead arsenate was superior to acid lead arsenate on the basis of foliage and wood injuries. The California spray schedule for peaches has for several years recommended the basic form of lead arsenate in spite of their weather conditions being less inducive to arsenical injury than conditions in the East. While the basic lead arsenate causes less injury to foliage, it is generally considered less effective as a poison against the curculio. However, if the amount of basic lead arsenate is increased to four or five pounds per hundred gallons of spray with six pounds of hydrated lime, this tends to increase its effectiveness against the curculio. A survey of the Experimental Orchard at Columbus in late July this year showed good curculio control with the basic form of lead arsenate.

The basic form of lead arsenate is available from most large spray manufacturing companies. The cost of applying it is less than one cent more per spray per mature peach tree, as compared with the acid form of lead arsenate. Where the grower is using varieties of peaches which are relatively susceptible to arsenical injury it may prove profitable to give the basic form of lead arsenate a trial. Good foliage is highly important in the annual production of large fruits.

RUBBER STAMPS FOR GROWERS

Growers and packers find the Portable Warehouse stamps and sponge pads which are manufactured by the Rivet-O Manufacturing Company of Orange, Massachusetts, efficient time savers.

The portable pad is of sponge rubber and designed for operators to carry in one hand while carrying stamp in other for rapid marking of boxes, baskets, barrels, etc. There's also a portable wrist model which can be strapped to the wrist and worn all day without inconvenience, thus leaving both hands free.

The Rivet-O Manufacturing Company also manufactures the Special Fruit Growers' Logotype "Speed-Mo" rubber stamp which is complete in one unit, having interchangeable logotypes for size, grade and brand.

Take full advantage of "Friend" Dependability

You have probably used the "Friend" Sprayer—thousands of growers have found it without a rival for Reliability.

But have you used the other "Friend" machines that are built to the same high standard?

SPRAYERS: One reason why the "Friend" Sprayer is more dependable, and costs less to operate, is the simplicity of its pump—only ½ to ⅓ as many parts as others. Capacities up to 70 gal. per min.; pressures up to 1,000 lb.

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REMOVING OLD TREES FOR NEW

(Continued from page 6)

nary farm tractor will not pull a tree of this size out and moreover we have found that a block and tackle hitch on these old trees is pretty likely to shatter the tree above ground and leave the stump still to be removed.

By using dynamite a much better job can be done on these old trees. A pound or so will loosen them up so they can be lifted out with a tractor or block and tackle hitch, but from 2½ to 3 pounds properly placed will blow even a large tree clear of the ground, and this plan in the long run is probably to be preferred.

The first requirement in using dynamite is to have a workman who understands how to use it without danger to himself or others working with him. The danger is more apparent than real, but it is not wise to take chances with an explosive. There are two types of fuses used in exploding dynamite for agricultural purposes—the old powder fuse and the electric wire cap exploders. The latter type is preferable. When the dynamite charge is planted the wire fuse is attached to one stick and this wire connected to a two-way insulated wire one hundred feet long. When everything is in readiness the other end of the insulated wire is simply connected with the poles on an automobile battery and the explosion occurs.

It is important that the charge be so placed that all the dynamite explodes. The charge of dynamite should be under the heart of the tree. This usually means the hole which is bored slantwise under the tree is at least three feet from the surface.

One of the decided advantages in using dynamite on these large trees is that there is much less soil to remove from the roots and refitting the orchard is facilitated.

To remove 153 trees, most of which were large fifty-year-old trees, 295 pounds of dynamite was used, an average of just a little under two pounds per tree. After the value of the firewood salvaged from the trees had been deducted, the cost of removing the trees and clearing the land ready for plowing was $81.00 per acre, or $2.12 per tree.

This may seem like a rather high cost at first, but taking into consideration the importance of using proven sites for fruit, it is not too much. This particular site was limed with 3 tons of ground limestone per acre and seeded to soybeans. By turning under cover crops for a couple of years this site will be ready again for orchard.

Contrasted with these costs, the expense of removing 16-year-old filler apple trees with a tractor, using direct hitch, was 70 cents per tree. The complete cost of putting the soil in condition for trees again in this orchard is not yet available. However, it is worth noting that Burkholder and Hall of Purdue University found that the cost of fitting the soil and applying lime and fertilizer to the soil was about half that of removing and disposing of the trees in a forty-year-old apple orchard.

From an economic point of view, whether dynamite should be used would seem to depend upon (1) the age and size of the trees to be removed and (2) the use to be made of the land after the trees are cleared away. For trees up to 20 or 25 years old, depending upon root penetration, it is probably cheaper to use a tractor with a direct hitch or a block and tackle than dynamite. It should be noted that even large trees may be removed by specially constructed block and tackle but this equipment is rarely available to the average fruit grower. Naturally, if the site from which the trees are being removed is not to be returned to orchard or used for cultivated crops which require plowing, it is cheaper to merely saw them off near the ground level. However, it is well to keep in mind that clearing up the trunk, limbs and brush comprises the major portion of the whole operation of tree removal.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

OF AMERICAN FRUIT GROWER, published monthly at Cleveland, Ohio, for October, 1943.

STATE OF OHIO
COUNTY OF CUYAHOGA } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared E. G. K. Meister, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the AMERICAN FRUIT GROWER and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Fruit Grower Publishing Company, 1370 Ontario St., Cleveland, Ohio; Editor, J. H. Gourley, 1370 Ontario St., Cleveland, Ohio; Managing Editor, Dean Halliday, 1370 Ontario St., Cleveland, Ohio; Business Manager, E. G. K. Meister, 1370 Ontario St., Cleveland, Ohio.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is (This information is required from daily publications only.)

E. G. K. MEISTER,
Business Manager.

Sworn to and subscribed before me this 14th day of September, 1943.

(Seal) H. Willkom, Notary Public.
(My commission expires November 15, 1944).

NUT GROWERS NEWS

FOR several years the crops of hybrid filberts resulting from the breeding work of the Experiment Station at Geneva, N. Y. have been used by the Soil Conservation Service for erosion control planting. In the 1942 report of the Northern Nut Growers' Association, Frank C. Edminster of the Soil Conservation Service reports results from 12 hybrid filbert plantations in New York and Pennsylvania. Seven plantings of the native hazelnut were also included in the report.

The hybrid filberts have not proved to be outstanding conservation plants under the conditions of the test which would be considered poor by orchard planters. Since the species was being tested for its value in controlling erosion the sites chosen were eroded and subject to erosion. Plants for this purpose are judged by their ability to survive drouth, low temperature, active erosion, low soil fertility and competition with other vegetation. The speed of growth of the top and roots and the ability of the plant to spread quickly from seed or by stolons or layered branches are especially important.

The hybrid filberts give promise of limited usefulness in conservation planting. They are tenacious and show a relatively high survival. In 8 of the 12 plantings more than 90 per cent of the plants were living after 4 or 5 years, and in only 2 instances did the survival fall below 80 per cent. One of these was a gravel roadbank offering almost hopeless conditions for growth.

Even with the poor growing conditions all plantations were entirely hardy.

The plants showed a high resistance to drouth insofar as survival is concerned but growth was seriously affected. In the bottom of a gully where soil and moisture conditions were better than on the sides and the top of an adjacent knoll the plants made much greater growth in the gully. It has not been possible to measure accurately the relative importance of moisture and soil fertility on the growth of filberts but it is thought that they can be depended on to do well only when some topsoil is present and the site is well-drained.

In conclusion Mr. Edminster states that "the 5-year record indicates a rather limited usefulness of hybrid filberts in farm conservation planting work. When placed on sites having some topsoil remaining and with fair moisture conditions, good results are probable. On poor eroding areas they will not thrive. For erosion control on severe sites they do not compare favorably with a number of other shrubs. They do not spread and cover an area quickly. They do not produce nuts in 5 years but indications point to some next year. The hybrids seem to have a small advantage over the native American species, but we have not been able so far to make a comparison of the crops produced."—George L. Slate, Sec'y, Northern Nut Growers' Assn., Geneva, New York.

Crop News, Kitchen Hints and Good-Natured Teasing...

The warmth in the voice that says "hello" to a visiting neighbor. The cookies that fill up the pan which carried doughnuts to *their* house last week. The little compliments, jokes and good-natured teasing. The bits of crop news and the kitchen hints that are traded.

Such ordinary little happenings may not make *history* but they are the things that build *morale*.

* * *

One of the little things many Americans enjoy is the right to a cool and relaxing glass of beer when the day's work is done. It doesn't have to be beer—it can be lemonade or buttermilk.

A glass of beer—a small thing, surely—not of crucial importance to any of us. And yet—morale *is* a lot of little things like this. Little things that help to lift the spirit, keep up the courage, make us more tolerant and understanding of one another. Little things that are part and parcel of our own American way of life.

And, after all, aren't they among the things we fight for?

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RODENT CONTROL—THE PINE MOUSE

(Continued from page 16)

should be set firmly (not tilted) on the soil and in such a way that the pan of the trigger is crosswise to the burrow. Since burrows are a few inches under the surface of the soil, it will be necessary to remove enough dirt to set the top of the trap flush with the bottom of the burrow. The burrow must be cleaned out on either side, before the trap is set. Traps may have to be set many times before catching a mouse, as these mice have a habit of covering the traps with dirt through their digging, especially at certain seasons of the year. Trap placements should also be marked by tying a piece of cotton cloth to the limb of a tree or to a stick in the ground so that they may be easily located. Traps should be covered, preferably with some stiff material, such as cardboard, newspaper or other such material, and should be checked twice each day.

Gassing is not a very economical method for controlling pine mice but it will kill them. Calcium cyanide, which gives off the deadly hydrocyanic acid gas when exposed to air, is the best gas to use. To properly distribute the cyanide powder or "dust" in the burrows, a hand pressure pump with a two- or three-foot hose attached should be used. First, find the so-called breather holes or entrances to underground burrows. Usually, there are several such holes under each tree. If these cannot be found readily, it will be necessary to probe or dig away the dirt until the underground burrows are found. After the holes or burrows have been located, insert the nozzle of the hose well into the burrow (be careful not to fill the nozzle end with dirt), then pump with two or three short strokes, withdraw the hose and press in the entrance to the burrow and any other holes where the cyanide dust may appear. For best results, at least three of these holes, well distributed under each tree, should be gassed. Hydrocyanic acid gas does not seem to be harmful to the trees, according to reports by users. Although other gases might be used, it is not definitely known whether they are injurious to the trees. Finally, the use of poison gases to destroy pine mice is only effective if carried out by a careful worker; and, where a large area is to be treated, much time will be expended and the cost of materials will be greater than necessary. In using poisonous gases, the operator should make sure that he does not breathe the fumes.

As in the case of the meadow mouse, the Fish and Wildlife Service has found that the most efficient and economical way of getting rid of pine mice in orchards is to poison them. Fortunately, the materials used and method of preparing poisoned bait are exactly the same for both mice. There is a difference in the exposure of placement of poisoned baits, however.

The materials used and method of preparing poisoned baits were outlined in *Part I—The Meadow Mouse* of an article in the September AMERICAN FRUIT GROWER.

The best time to expose poisoned apple bait in the orchard is early fall (September or October). But the time and method of exposure varies from the northern to the southern sections of the pine mouse range. Information may be obtained from the local County Agricultural Agent. As in the case of meadow mice, it is best that the poisoned apple baits should not be exposed until after harvesting, when all dropped apples have been gathered. They should be placed directly in the breather holes, or in active surface trails, or holes and runways under concentration stations purposely provided in the orchard.

Concentration stations are most useful where holes are not evident and where surface trails do not occur or are poorly defined in light grass areas. This is particularly true of the pine mouse in the southern half of its range. In that region, mulching is not a common practice and the grass or other cover is light or absent. Concentration stations may be made by placing forkfuls of hay or mulch, old sacks, bundles of corn fodder, box ends, wood slabs, or, best of all, heavy asphalt paper squares (about 18" x 18") under trees. At least one concentration station should be placed near each tree base, located preferably within the drip line. If these materials are placed over breather holes, mounds of fresh dirt, or other active looking spots, at least two weeks before poisoning and after the last mowing, pine mice will make active runways under them.

In placing the poisoned baits in the orchard, be careful not to trample on burrows. Work from the drip line toward the tree base. Carefully raise one side or part of the station (paper square, wood slab, mulch, etc.) in order not to disturb the runways. Place 2 or 3 pieces of poisoned apple bait in the runways, then lower the station to original position. In this way, there is little likelihood of debris falling

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into fresh runways or upon the poisoned bait. *Wherever drops are present under trees, one tablespoonful of zinc phosphide steam crushed oats may be used with each piece of poisoned apple bait.*

Even when using concentration stations, one or two poisoned apple baits should be put in each breather hole. If concentration stations are not used, four or more breather holes, or holes made by probing, must be baited at each tree. Probing simply consists in forcing a one-half to one inch thick stick, about two feet long, into soil under the tree to locate underground burrows. It is relatively easy to probe for these burrows. When probe hits a runway, the earth will give a little and probe will suddenly go down.

Be careful to examine burrows for fresh activity as pine mice often do not use more than one-third of their usual winter burrow systems during the summer and fall, due to a plentiful food supply and heavy surface cover. Fine roots, mold, or fungus growth in burrows indicate runways are not in use, while newly excavated dirt in fan-shaped mounds and clean burrows indicate activity.

The natural predators of pine mice are skunks, foxes, shrews, snakes, hawks, and owls. The presence of the predators in about the orchard should be encouraged as they take a heavy toll of mice. Domestic cats and dogs, in certain locations, also prey on mice and are a factor in keeping their numbers down.

Remember that poison control, properly done, is the best insurance against damage by pine mice; and, that an orchard is the owner's investment and should be examined often for any initial indication of mouse activity.

PRUNING

(Continued from page 12)

ed in this way a number of wide angled branches arise around the trunk, and during the summer of the first year, or in early spring of the second year, or both, a selection can be made to secure four, or not more than five, good wide angled scaffolds with sufficient vertical and radial spacing, so that no crowding of the head will result. These scaffolds are then trained in subsequent annual prunings to develop a rather open bowl shaped type of tree.

Pears, plums and cherries are best trained to the modified leader type of tree as described for the apple. With plums and sour cherries somewhat closer scaffold spacing can be permitted. It is very important in training cherry trees that no two scaffolds be allowed to arise one above the other. To secure desirable uniform growth and symmetrical trees, special care must be used to secure desirable radial spacing so that the scaffolds selected will grow unrestricted. It is impossible to train each tree to a blueprint pattern. Each tree is an individual and must be handled as an individual, recognizing fundamental principles and striving to get desirable vertical and radial spacing of wide angled scaffold branches.

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NATIONWIDE NEWS

(Continued from page 5)

to a procurement agency of the United States, the seller may add extra packing expenses to the maximum domestic price; if the packing specified by the buyer differs from standard packing and repacking of the buyer's specifications is required; or if the commodity has already been packed to specification and repacking to new specification is required. The buyer must request that the commodity be packed to specification. The seller must bill the extra cost separately and keep account of extra costs for O. P. A. inspection.

★

THE War Food Administration today urged consumers who buy fruits and vegetables in bulk to return their empty containers to dealers from whom the purchases were made to help relieve a critical shortage of wooden containers. Second-hand containers are needed for packing and shipping other commodities to market.

Used container firms collect second-hand crates, hampers, boxes, and baskets from fruit and vegetable dealers and re-distribute them to growers and packing houses. This helps alleviate the short supply of new containers which are not being produced in normal quantities because of war demands for these materials and facilities.

★

WEST Coast packers have been authorized to release from 120,000 to 130,000 tons of dried raisins and prunes from their 1943 production for sale to civilians through the regular commercial trade channels, reports the War Food Administration. Additional quantities will be released later.

The released quantities will include from 55,000 to 60,000 tons of raisins and from 65,000 to 70,000 tons of prunes from the 1943 pack. These supplies will come from the raisins and prunes which packers are required to set aside for Government use under Food Distribution Order 16. The order requires that the entire 1943 pack of dried raisins, prunes, apples, apricots, peaches, pears, and currants be set aside for Government use but provides for the release of quantities of these dried fruits for civilian consumption.

FRUIT SITUATION SUMMARIZED

According to the Bureau of Agricultural Economics, total fruit production in the United States during the 1943-44 season, assuming a continuation of favorable growing conditions for citrus fruit, probably will be about 11 per cent smaller than in 1942-43 (basis August 1 indication). Deciduous tree-fruit and grape production in the aggregate is expected to be about 17 per cent smaller than that of last season. Prospects are that only the prune and grape crops will exceed those of last year, by 12 and 11 per cent, respectively, while the fig crop will be about the same as last season. All other major deciduous tree-fruit crops are expected to be smaller than in 1942. Citrus prospects are about as favorable as a year ago. August 1 conditions were more favorable for all California citrus crops this season than last, but somewhat less favorable for Texas grapefruit and Florida oranges and grapefruit. Civilian supplies of fresh fruits during the marketing year 1943-44 may be about 15 per cent smaller than in 1942-43, if prospective production and noncivilian requirements remain as now indicated.

THE latest report on the War Food Administration program initiated last spring to assist farmers in wartime food production by converting steel wheels on tractors and implements to rubber tires, indicates that 33,144 "conversions" from steel wheels had been authorized by County Agricultural War Boards, involving more than 98,000 tires.

The program recently was suspended for a short time, pending arrangements regarding the availability of additional tires, but has been resumed under limited conditions. At the time 33,144 conversions were reported, it was estimated that about 4,750 additional applications were pending and that farmers would apply for about 21,000 more conversions during the remainder of 1943.

★

TENNESSEE Valley Authority is making up large amounts of ammonium nitrate fertilizer that will ease up the shortage of nitrogen fertilizers. The material carries about 33% of nitrogen, and being about twice as strong as nitrate of soda only half the usual amount in tonnage will be necessary in orchards. The material does not keep well in handling condition and should not be ordered too long ahead of time of use, and if stored, it should be kept cool and dry. The material is an explosive if detonated, so should be handled and stored with reasonable consideration of fire hazards. This should not frighten growers, as nitrate of soda is also easy to burn if care in use is not observed.

★

TIRE rationing eligibility rules have been broadened to provide recapping services and new tubes upon certificate for all commercial vehicles, regardless of the use to which they are put. This removes restrictions whereby certificates were denied for recapping services and new tubes to commercial motor vehicles which local boards did not consider essential to the community.

Another measure removes the rationing restrictions on the use of Grade "C" camelback in recapping services, since it is now possible to provide a higher quality camelback for recapping truck and passenger car tires. Recapping with Grade "C" camelback formerly was not permitted for passenger automobiles. Grade "A" camelback previously available for only the largest truck and bus tires, may now be obtained for recapping tires on all trucks and buses, although it is still subject to rationing.

Also announced were new rationing provisions for adding tires being salvaged from Government scrap piles to the supply of used and recapped passenger car tires. This action also provides for transfer upon authorization of used passenger tires now in the hands of manufacturers, which previously could be transferred only in exchange for rationing certificates. In all cases, consumers will continue to buy used tires only upon presentation of a tire certificate.

A P S

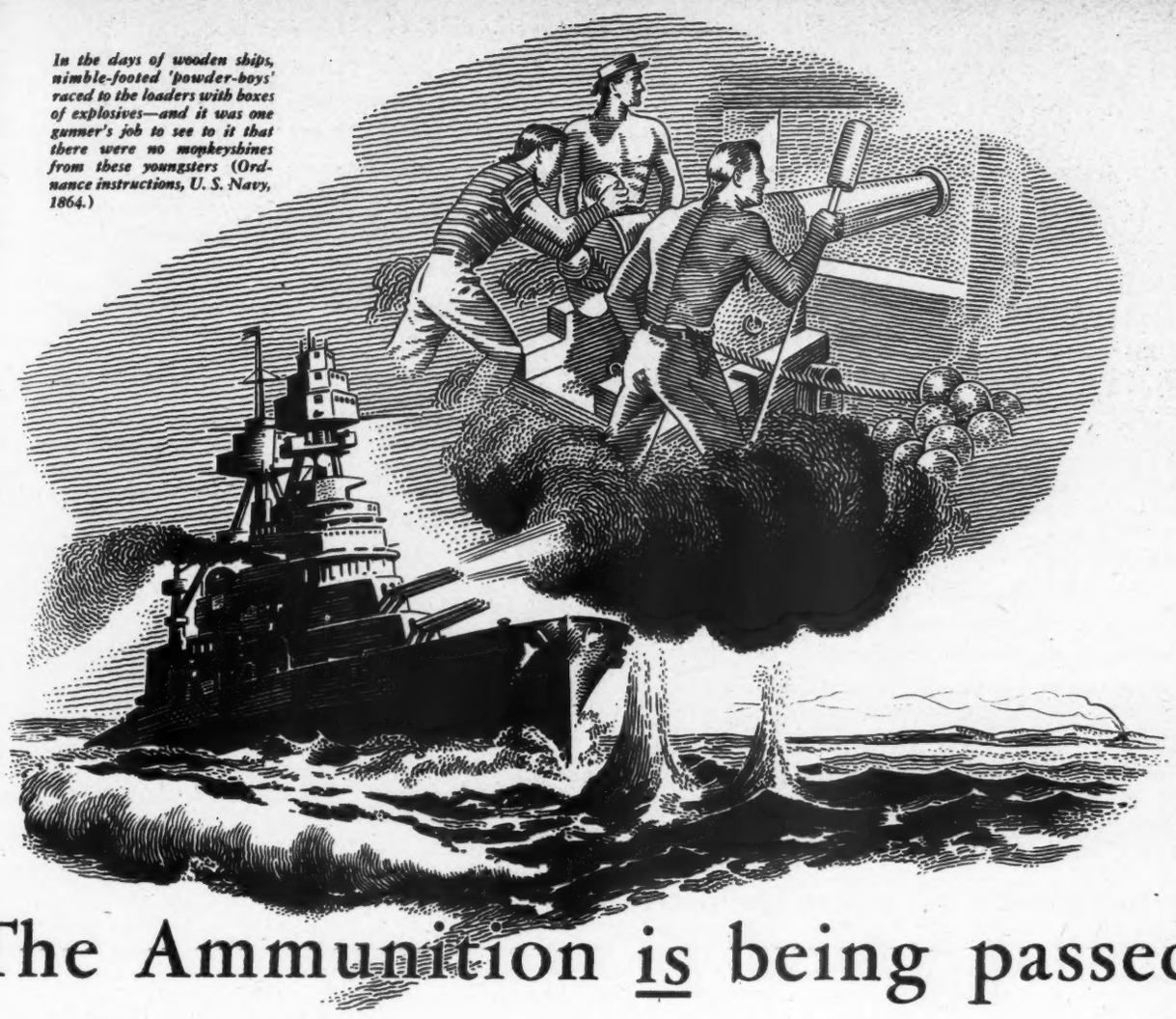
(Continued from page 15)

cooperation, fairness and honesty toward the rights of all concerned has created over the years a great storehouse of "good will"—an inexhaustible source of strength, always watchful and cognizant of the growers' rights and privileges.

The make-up and organization of the society has enabled it to assist fruit growers with the least expenditure of funds and energy. The leadership has had the happy combination of possessing both practical and scientific knowledge. The society, therefore, has a place or fills a niche of vital importance.

The American Pomological Society founded upon the principles of good will, understanding, and cooperation has had a dominant voice in the activities of fruit growers throughout the country. In most cases this was accomplished without the average producer being aware of it. To fail to support and maintain an overall and international organization with such a splendid record for practical achievements for horticulture generally is unthinkable.

The Society believes it can serve you in this emergency and that you may need its help now more than ever. We promise you our fullest cooperation and assistance and in return may we have no less from the membership throughout the country.



In the days of wooden ships, nimble-footed 'powder-boys' raced to the loaders with boxes of explosives—and it was one gunner's job to see to it that there were no monkeyshines from these youngsters (Ordnance instructions, U. S. Navy, 1864.)

The Ammunition is being passed

There's no monkey-business about the way the ammunition is being passed in this war, either. For example, the Navy's 5-inch 38 caliber gun throws shells at planes or surface craft at a terrific rate. Its powder and shells must come to the gun in a steady stream. How is it done? With an ingenious hoist whose tolerances are so close that the mechanism is comparable to the movement of a fine watch.

Ammunition hoists for the Navy are being produced so fast and efficiently by the Busch-Sulzer Bros. Diesel Engine Company that the organization has been awarded a second star in its Navy E pennant. Busch-Sulzer, which made engines for submarines in the last war, was founded by Adolphus Busch, the founder of Anheuser-Busch. He was the first to build Diesels in America—and the first American-made Diesel went into the Home of Budweiser. Now as then, the quest for better methods and facilities to produce the world's most popular beer never ceases.

Budweiser

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In addition to supplying the armed forces with glider parts, gun turret parts and foodstuffs, Anheuser-Busch provides materials which go into the manufacture of: Rubber • Aluminum • Munitions Medicines • B Complex Vitamins • Hospital Diets • Baby Foods • Bread and other Bakery products • Vitamin-fortified cattle feeds • Batteries • Paper • Soap and textiles—to name a few.

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NOW come amazing new improvements in apples, peaches, pears, cherries, plums, grapes and berries. Revolutionary fruits which bear younger and more abundantly than ordinary unimproved varieties are now available to help relieve the alarming fruit shortage revealed by the latest U.S. Census and crop reports. Thousands of farmers and city folks alike are planting these new fruits. Fruits so husky, hardy and vigorous that almost anyone can expect success with reasonable care.

Many of these new varieties are so different from past favorites in mammoth size, extra-rich flavor, luscious juiciness, or beautiful color coming weeks earlier that they have been awarded U. S. Patents or Trade-Marks—recognized as are other great inventions. These miracle fruits are introductions of the plant wizards, Burbank and Stark—and are exclusive "pure strains" propagated direct in line from the improved parent trees by Stark Bros., to help speed growth, prevent "back-throw," loss of vigor, or quality of fruit.

Trees that often pay back their entire cost before ordinary trees bear first full crop

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